Amendments to the Claims:

Please cancel claim 54 without prejudice or disclaimer of the subject matter thereof, rewrite claim 56 in independent form and amend claims 59 and 60 as follows.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 - 23 (canceled)

24. (previously presented) A method for operating a nuclear reactor having a reactor vessel, a plurality of fuel assemblies loaded in a core arranged inside the reactor vessel, wherein each of said plurality of fuel assemblies includes a plurality of fuel rods and at least one water rod therein, and a pump which regulates a flow rate of coolant supplied to the core, the method comprising the steps of:

raising a coolant surface formed between the coolant and a vapor in the at least one water rod by increasing the flow rate of the coolant supplied to the core based on increasing a number of revolutions of the pump during one period from a beginning of one fuel cycle, which one fuel cycle is an operation period of the nuclear reactor from when fuel assemblies in the nuclear reactor are replaced and operation of the nuclear reactor is started to when the nuclear reactor is stopped for renewing at least one of the fuel assemblies in the nuclear reactor, and before an end of the one fuel cycle; and

further increasing the flow rate of coolant supplied to the core based on increasing the number of revolutions of the pump during another period after the one period to an end of the one fuel cycle in a state in which the at least one water rod is completely filled with the coolant.

Claim 25 (canceled)

26. (previously presented) A method according to claim 24, wherein each of said plurality of fuel assemblies include an upper tie plate, a lower tie plate, the plurality of fuel rods having upper end portions held by the upper tie plate and lower end portions held by a fuel rod holding portion of the lower tie plate, the fuel rods being each filled with a plurality of fuel pellets, and the at least one water rod being arranged among the fuel rods, a resistance member provided at a lower end portion of the fuel assembly, a coolant ascending path in which the at least one water rod has a coolant inlet port open in a region lower than the resistance member, and a coolant descending path which is communicated with the coolant ascending path and which has a coolant delivery port that is open in a region higher than the resistance member, in order to guide the coolant downwardly in an opposite direction to a direction in which the coolant flows in the coolant ascending path.

Claims 27 - 28 (canceled)

29. (previously presented) A method according to claim 26, wherein the resistance member is the fuel rod holding portion of the lower tie plate.

Claims 30 - 39 (canceled)

40. (previously presented) A method according to claim 26, wherein the coolant ascending path in the at least one water rod is located so as to extend beyond an upper end of a fuel pellet-filled region of the fuel rods of the at least one fuel assembly.

41. (previously presented) A method according to claim 26, wherein an upper end of the coolant ascending path in the at least one water rod is located at a

position lower than an upper end of a fuel pellet-filled region of the fuel rods of the at least one fuel assembly.

42. (previously presented) A method according to claim 40, the coolant delivery port of the at least one water rod is located at a position near a lower end of the fuel pellet-filled region.

43. (previously presented) A method according to claim 26, wherein the coolant descending path of the at least one water rod is located so as to surround the coolant ascending path of the at least one water rod.

Claims 44 - 49 (canceled)

50. (previously presented) A method according to claim 24, wherein the coolant is cooling water.

Claim 51 (canceled)

52. (previously presented) A method for operating a nuclear reactor having a reactor vessel and at least one fuel assembly loaded in a core arranged inside the reactor vessel, the at least one fuel assembly having an upper tie plate, a lower tie plate, a plurality of fuel rods having upper end portions held by the upper tie plate and lower end portions held by a fuel rod holding portion of the lower tie plate, at least one water rod arranged among the fuel rods, and a resistance member at a lower end portion of the at least one fuel assembly, the plurality of fuel rods having a plurality of fuel pellets therein, and the at least one water rod having a coolant ascending path including a coolant inlet port which is open in a region lower than the resistance member, and a coolant descending path which is communicated with the

coolant ascending path, the coolant descending path having a coolant delivery port open in a region higher than the resistance member, the coolant being guided downwardly in the coolant descending path in an opposite direction of the coolant flow in the coolant ascending path, the method comprising the step of regulating a flow rate of the coolant supplied to the core by a pump including the steps of:

raising a coolant surface formed between the coolant and a vapor in the at least one water rod by increasing the flow rate of the coolant supplied to the core based on increasing a number of revolutions of the pump during one period from a beginning of one fuel cycle, which one fuel cycle is an operation period of the nuclear reactor from when fuel assemblies in the nuclear reactor are replaced and operation of the nuclear reactor is started to when the nuclear reactor is stopped for renewing at least one of the fuel assemblies in the nuclear reactor, and before an end of the one fuel cycle; and

further increasing the flow rate of the coolant supplied to the core based on increasing the number of revolutions of the pump during another period after the one period to an end of the one fuel cycle in a state in which the at least one water rod is completely filled with the coolant and no vapor is present in the at the another period.

53. (previously presented) A method according to claim 52, wherein the step of raising the coolant surface includes increasing the flow rate of the coolant in the range of 0% to less than 110% of the flow rate during the one period and the step of further increasing the flow rate of the coolant includes increasing the flow rate above 110% of the flow rate during the another period.

Claim 54 (canceled)

Claim 55 (canceled)

56. (currently amended) A method ~~according to 54,~~ for operating a nuclear reactor having a reactor vessel and at least one fuel assembly loaded in a core arranged inside the reactor vessel, the at least one fuel assembly having an upper tie plate, a lower tie plate, a plurality of fuel rods having upper end portions held by the upper tie plate and lower end portions held by a fuel rod holding portion of the lower tie plate, a plurality of water rods arranged among the fuel rods, and a resistance member at a lower end portion of the at least one fuel assembly, the plurality of fuel rods having a plurality of fuel pellets therein, and each of the water rods having a coolant ascending path including a coolant inlet port which is open in a region lower than the resistance member, and a coolant descending path which is communicated with the coolant ascending path, the coolant descending path having a coolant delivery port open in a region higher than the resistance member, the coolant being guided downwardly in the coolant descending path in an opposite direction of the coolant flow in the coolant ascending path, the method comprising the steps of:

loading a plurality of the fuel assemblies in the reactor core; and

controlling the amounts of voids accumulated in the water rods by regulating a number of revolutions of a pump supplying coolant to the core;

wherein the step of controlling the amount of voids includes the step of regulating a flow rate of coolant supplied to the core including the steps of:

raising a coolant surface formed between the coolant and a vapor in the water rods by increasing the flow rate of the coolant supplied to the core based on increasing the number of revolutions of the pump during one period from a beginning of one fuel cycle, which one fuel cycle is an operation period of the nuclear reactor from when fuel assemblies in the nuclear reactor are replaced and operation of the nuclear reactor is started to when the nuclear reactor is stopped for renewing at least one of the fuel assemblies in the nuclear reactor, and before an end of the one fuel cycle; and

further increasing the flow rate of the coolant supplied to the core based on increasing the number of revolutions of the pump during the another period in a state in which the water rods are completely filled with the coolant and no vapor is present in the water rods at the another period.

57. (previously presented) A method according to claim 56, wherein the step of raising the coolant surface includes increasing the flow rate of the coolant in the range of 0% to less than 110% of the flow rate during the one period and the step of further increasing the flow rate of the coolant includes increasing the flow rate above 110% of the flow rate during the another period.

58. (previously presented) A method according to claim 24, wherein the at least one water rod includes a coolant ascending path having a coolant inlet port and a coolant descending path connected with the coolant ascending path at a top portion thereof so that all of the coolant supplied into the coolant ascending path is introduced into the coolant descending path in a downward direction opposite to the direction of the flow of the coolant in the coolant ascending path, the coolant descending path having a coolant delivery port.

59. (currently amended) A method according to claim 52, wherein the coolant descending path is communicated with the coolant ~~descending~~ ascending path at a top portion of the coolant ascending path so that all of the coolant supplied into the coolant ascending path is introduced into the coolant descending path in the downward direction opposite to the direction of the flow of the coolant in the coolant descending path.

60. (currently amended) A method according to claim ~~54~~ 56, wherein the coolant descending path is communicated with the coolant ~~descending~~ ascending

path at a top portion of the coolant ascending path so that all of the coolant supplied into the coolant ascending path is introduced into the coolant descending path in the downward direction opposite to the direction of the flow of the coolant in the coolant descending path.

61. (previously presented) A method for operating a nuclear reactor having a reactor vessel, a plurality of fuel assemblies loaded in a core arranged inside the reactor vessel, wherein each of said plurality of fuel assemblies includes a plurality of fuel rods and at least one water rod therein, and a pump which regulates a flow rate of coolant supplied to the core, the method comprising the steps of:

raising a coolant surface formed between the coolant and a vapor in the at least one water rod by increasing the flow rate of the coolant supplied to the core based on increasing a number of revolutions of the pump during one period from a beginning of one fuel cycle, which one fuel cycle is an operation period of the nuclear reactor from when fuel assemblies in the nuclear reactor are replaced and operation of the nuclear reactor is started to when the nuclear reactor is stopped for renewing a portion of the fuel assemblies in the nuclear reactor, and before an end of the one fuel cycle; and

further increasing the flow rate of coolant supplied to the core based on increasing the number of revolutions of the pump during another period after the one period to an end of the one fuel cycle in a state in which the at least one water rod is completely filled with the coolant.

62. (previously presented) A method for operating a nuclear reactor having a reactor vessel and at least one fuel assembly loaded in a core arranged inside the reactor vessel, the at least one fuel assembly having an upper tie plate, a lower tie plate, a plurality of fuel rods having upper end portions held by the upper tie plate and lower end portions held by a fuel rod holding portion of the lower tie plate, at

least one water rod arranged among the fuel rods, and a resistance member at a lower end portion of the at least one fuel assembly, the plurality of fuel rods having a plurality of fuel pellets therein, and the at least one water rod having a coolant ascending path including a coolant inlet port which is open in a region lower than the resistance member, and a coolant descending path which is communicated with the coolant ascending path, the coolant descending path having a coolant delivery port open in a region higher than the resistance member, the coolant being guided downwardly in the coolant descending path in an opposite direction of the coolant flow in the coolant ascending path, the method comprising the step of regulating a flow rate of the coolant supplied to the core by a pump including the steps of:

raising a coolant surface formed between the coolant and a vapor in the at least one water rod by increasing the flow rate of the coolant supplied to the core based on increasing a number of revolutions of the pump during one period from a beginning of one fuel cycle, which one fuel cycle is an operation period of the nuclear reactor from when fuel assemblies in the nuclear reactor are replaced and operation of the nuclear reactor is started to when the nuclear reactor is stopped for renewing a portion of the fuel assemblies in the nuclear reactor, and before an end of the one fuel cycle; and

further increasing the flow rate of the coolant supplied to the core based on increasing the number of revolutions of the pump during another period after the one period to an end of the one fuel cycle in a state in which the at least one water rod is completely filled with the coolant and no vapor is present in the at the another period.

63. (previously presented) A method according to 62, wherein the step of controlling the amount of voids includes the step of regulating a flow rate of coolant supplied to the core including the steps of:

raising a coolant surface formed between the coolant and a vapor in the water rods by increasing the flow rate of the coolant supplied to the core based on

increasing the number of revolutions of the pump during one period from a beginning of one fuel cycle, which one fuel cycle is an operation period of the nuclear reactor from when fuel assemblies in the nuclear reactor are replaced and operation of the nuclear reactor is started to when the nuclear reactor is stopped for renewing a portion of the fuel assemblies in the nuclear reactor, and before an end of the one fuel cycle; and

further increasing the flow rate of the coolant supplied to the core based on increasing the number of revolutions of the pump during the another period in a state in which the water rods are completely filled with the coolant and no vapor is present in the water rods at the another period.